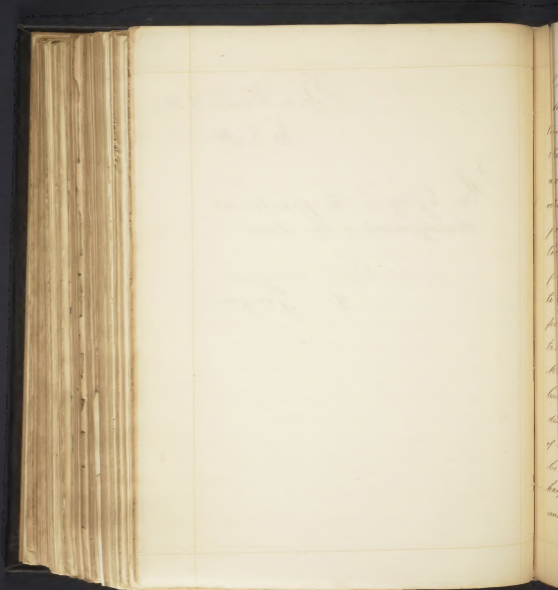


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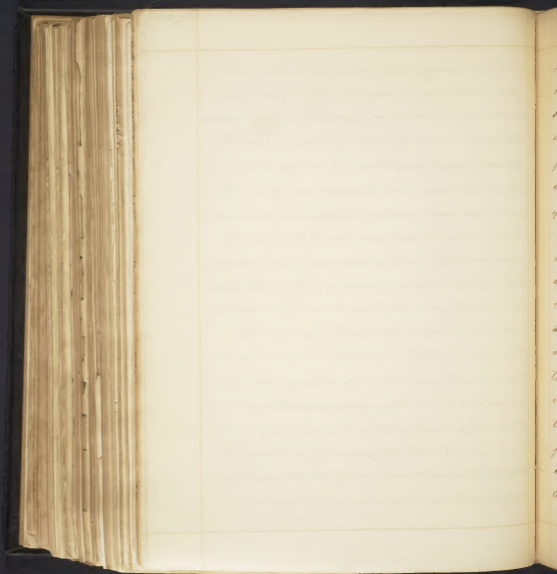
W. E. H.

An Essay on the functional
derangements of the Liver.

by Elijah Duguet
of Georgia.

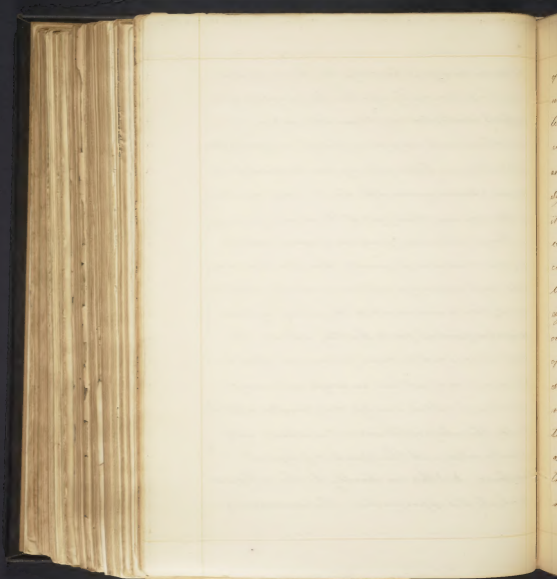


As preliminary to the following remarks on the functional disarrangements of the liver; a few observations, on the character and important relations ~~relations~~ this organ bears to the general system, may not be deemed entirely superfluous; in so doing we are not actuated, by a vain desire of communicating to the profession, what is already known; and what indeed the mere tyro in medicine, should be perfectly familiar with; but we are desirous, the more readily to keep up the chain of connection, between the various parts of the organ itself, and the multifarious diseases, to which it is subject; It is only by an accurate knowledge of its structure, that the musician can tune his instrument, and bring harmony out of discord; if a single string is neglected, through want of knowledge, or forgetfulness, the harmony will be incomplete; thus the physician in tuning his harp of thousand strings, must feel the necessity of constant application, to that fount of information, whence,

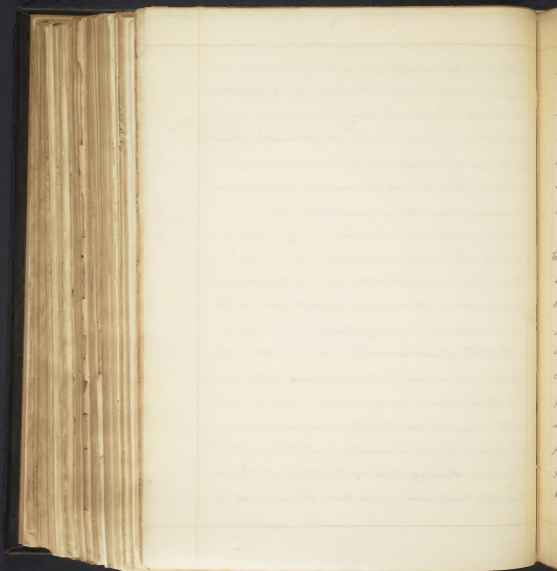


he derived his original knowledge; that his recollection may be refreshed, and by reflection his perceptions of the subjects investigated, may become more and more enlightened; such is my apology (if any be necessary) for presenting you before entering upon its diversified details, a summary view of the structure, and functions, of this very important part of the animal economy;

Throughout the various gradations of animal existence, no organ occurs more frequently than the liver, and as it exerts a sovereign influence over the intestinal canal, there is none on which the general system, is more dependent for its healthy actions; its most obvious and perhaps principal object, is the secretion of a fluid, an excess, deficiency, or vitiation, of which, is unlets, duly corrected, sufficient to clog the wheels of the animal machine, and finally extinguish the spark of physical existence; but this can hardly be the only end to which it is appropriated. "The immense size

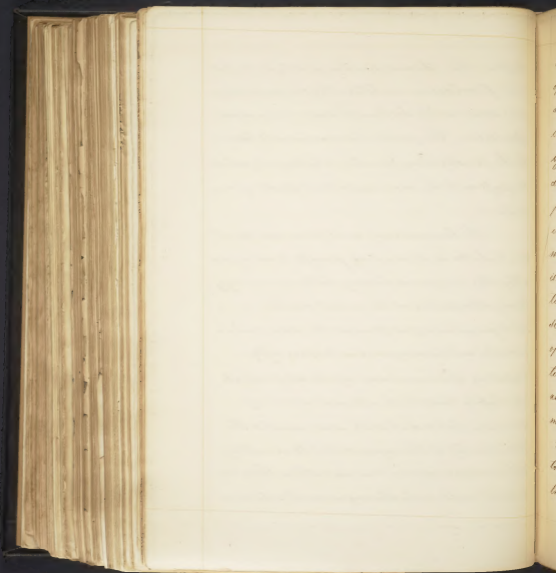


of the liver, says an excellent writer, the number and magnitude of the parts which compose its complicated vascular structure, its enormous magnitude, in the early stage of fetal existence, so well worthy of remark, and its special connection with the circulatory system, at that period, all lead us to conclude, that it answers some other purpose in the animal economy, besides the secretion of bile." when we consider the proportionate size of the fetal liver, compared with other parts of the glandular system, and at the same time reflect that little or no bile can be necessary for the performance of healthy functions in the fetus in utero, the stimulus natural to the intestines after birth not being here required, since no food passes to the stomach, and bowels, for digestion; we are compelled to grant the probability, that the liver, during this early stage of being, has other and more important functions to



perform, than the mere secretion of bile; but what these functions are, or whether they are continued in more advanced life, has been the subject of curious speculation. This question however we will leave to the investigating spirit of philosophy, while we pass on to the more important parts of our subject.

The liver not only in its form and structure, but also in its secretory process, is an organ altogether sui generis, bearing little or no analogy to any other portion of the animal structure; its organization differs from all the other viscera, in density, and firmness, and in its apparently consisting of a congeries of vessels, all of which probably tend to the ultimate object of secretion; but what still more marks the peculiarity of this organ, is that its secretory powers depend on a venous rather than an arterial influence; thus organized it is held in



its painless, by ligaments, to which may be ascribed many of those painful sensations, which so constantly attend acute hepatic affections, being itself possessed of but little sensibility; this is sufficiently demonstrated by the fact, that great functional and even organic derangement may take place, while little or no acute pain is experienced; owing to the number of vessels entering into the construction of the liver, and their multiplied circulations, the circulation in it is necessarily tardy; this renders the organ more liable to derangements, than other parts of less complicated structure. The secretions from slight causes are often materially affected, and if this is long protracted, organic deviations from health are superinduced, and the general system is at length involved, in the most complicated labyrinth of disease;

These derangements are not however confined to the corporeal part of our constitution, for with the affections of the brain, and general nervous energy,



The mind not unfrequently becomes affected, either with
 an insuperable torpidity, or with an irrelatability which
 renders the sufferer almost unfit for the duties of
 life. The idea entertained by the ancients, that
 melancholy, insanity, and the other mental aberrations,
 depended on vitiated biliary secretions, was founded
 on pretty correct principles, though by some
 the sentiment was carried beyond the limits of
 reason; but while we admit this, we would
 certainly, at the same time, maintain, that the
 connection between the physical and moral
 part of our nature, has been recently, too
 much neglected, and did modern practitioners,
 more closely investigate, the causes, and character,
 of diseases, supposed to be altogether moral,
 we have not the least doubt, but that many of
 them, could be traced to causes purely physical,
 and that not a few who drag out a miserable
 existence, pressed down by mental apathy, or



absolute alienation, would become useful members of society: speaking of the astonishing influence of hepatic derangement over the moral character, a beautiful writer on civic life, remarks that a disordered state of the biliary organ, produces an irregular distribution of blood, and venous energy in the brain; I am as well convinced as of my own existence, for so certainly does the mental index point to the corporeal derangement, that I am warned of the latter, by my waking train of thought, nay even by the tenor of my dreams: when biliary derangement arises to any height, the spring of my mental energy is lost, and every where difficulties, like hills over hills, and Alps on Alps arise, to embarrass my pursuits, and defeat my objects; I am quite satisfied (contented) that many important events in a man's life, which are usually attributed to moral causes, have depended on material ones,* but besides this torpidity-



and irritability, in the exercise of mental energy, the mind during the continuance of hepatic derangement often becomes more seriously affected, and the wretched sufferer becomes a prey to all the horrors of the blackest melancholy, tormented by as many imaginary as real evils, and trembling to alive to the probable result of his disease, he is often filled with the most gloomy forebodings, and conjuring up in his imagination the blackest images of despair, reason is for a time compelled to desert her throne, while anarchy and confusion usurp the place, again the tumult subsides, and the mind regains some degree of its original composure, for the present the patient is almost content with his fate, and he can now behold the march of disease with at least a calm complacency, but ere long doubts from some physical change, he is again depressed, and his soul is harrowed up by the most torturing anticipations, frequently the sport of terrific



fancy, which picture to his imagination enters into each;
 he drags out a life of constant apprehensions, which
 instead of the sympathy, excites the ridicule of those
 who deem it unforced; until at length there is
 a termination to his physical & moral sufferings.
 It is not a little singular, that two of the most
 important organs in the human body, the lungs
 and the liver, when in morbid state, should exert
 so striking a contrast in their effects, on the mind;
 thus even in the last stage of these two diseases
 moral in the whole breast, and the final catastrophe
 stands a long time revealing to us the nature of the
 ailment, in hepatic diseases, on the other hand, like
 the lightning's comets we see many times become an
 earth.

Having this slender resource, however, in
 the influence of hepatic morbidness, over the moral
 character, I will venture to say that to examine
 some of those symptoms which are produced, appears



on useful deviations at the times but let us now
on this, I hope it will not be deemed supererogatory
make a few remarks on its history, showing the
organ appropriated by nature to the reception of secre-
ted bile, is situated at the under surface of the great lob-
of the liver, to the right of the umbilical fissure, and
removed from the latter by the lobulus quadratus, to
which organ it is connected by cellular membrane
and by a canal, as it also is to the duodenum.

Through the ductus communis choledochus both the
hepatic and cystic bile after its preparation pass
to stimulate the intestines, to their peristaltic
motion, and to the performance of other duties, the
regular execution of which is indispensable to the
well being of the human economy. The student
in anatomy therefore of close attention in tracing
this part of our subject, cannot be too strongly
enforced; for specifying the various uses to
which the bile is appropriated, we cannot do -



better than in quotes from "Hager's Medical"
 Dictionary the following observations, "he remarks
 that the primary use of this fluid, so important
 to the animal economy, are not to separate the chyle
 from the chyme; thus chyle is never observed in
 the duodenum before the chyme has been mixed
 with the bile: and by its acridity it excites the
 contractile motion of the intestines, and
 thus it is that it imparts a yellow colour to the excrements,
 and it imparts a yellow colour to the excrements.
 Thus we observe the white colour of the feces in
 jaundice, in which disease the flow of bile into
 the Duodenum is entirely prevented; 4th it
 prevents the abundance of mucus and acidity in
 the primaria" One of the most frequent causes
 of biliary derangement is perhaps the very
 powerful sympathy that exists between the liver
 and the surface of the body; every atmospheric
 change affecting the skin, is apt to excite a



simultaneous influence over the hepatic system. To this source no doubt may be attributed many of those portal congestions, which in warm climates are so frequently met with, for as the skin after being stimulated to increased secretion, by the long continued application of heat, is more liable to sudden suppressions, from slight causes, than if it had never been proternaturally excited; & the liver after being morbidly stimulated to an increased and most deleterious biliary secretion, is liable upon application of cold, and moisture to the surface, to a proportionate torpidity, of the secretory vessels; the consequence of this, is an interruption of the transmission of the portal circulation in general circulation, and congestion is the certain consequence.

After these few hasty remarks on the economy of the hepatic system we will perhaps, be better prepared to examine, and understand, the



disarrangements to which the liver and its appendages are constantly liable; and 1st we will briefly consider the causes, and effects, of diminution of secretion.

After what has been said of the life and the various purposes to which it is adapted, it would be scarcely understood how any diminution in the quantity would be likely to affect the general system. This important alteration in the secretory powers of the liver, may be affected, by any of those slight changes of structure, to which it is so constantly liable from the most unperceived and trivial causes. Other diseases, the causes producing such effects, are far from being of a trivial character, while they remain unnoticed, or at least neglected, by the patient and too often by the practitioner himself; for as we have before remarked, the most important changes may be effected in the structure of this organ, while the patient remains insensible.



of any acute transient morbid deviations. Under such circumstances, the capillary system may become obstructed, and even the *Vena Ciliaris* eventually nearly obliterated; here then there must necessarily be an obstructed secretion, and consequently great torpor of the intestinal canal; for such cases says "Dr Saunders" the patient will be subject to a constant pain in the right hypochondrium, extending to the scapula, a painful pulsation over the liver, alternating with chills, tenderness, difficult breathing, inwards motion, some difficulty of lying on the left side, flatulency, eructations, acidity, costiveness, and together with a gradual diminution of strength and flesh. The patient has a pale or sallow complexion. This is often renewed without any very painful suffering, that chain of disease, which so often in defiance to all the resources of our art.

Independent of the great liability of the



liver to disease, on account of its very complicated
 structure. The stomach, however, is most susceptible,
 when in a diseased state, and this creates over it
 a very deleterious agency; hence dyspepsia and other
 gastric affections, are not unfrequently the immedi-
 ate causes of hepatic disorders; inordinate indulgence
 in eating or drinking, as well as excessive grief or
 sedentary habits, by weakening the strength of the
 stomach, effect a communication with some of the
 of the liver; likewise in hepatic complaints, want of
 appetite, flatulences, and indigestion, prove that the
 stomach, has been the primary seat of the disease.
 It becomes the duty of the physician, strictly to
 regulate the diet, prescribing all spirituous
 liquors, and every article of food not easily digestible
 advising his patient to eat frequently but little
 at a time; but as the simple regulation of diet,
 will frequently not alone be sufficient to restore
 the healthy action of the stomach, it often



becomes necessary to resort to chalybeates, and tonics
 before we can effect the desired object; diminished
 secretion of bile, however independent of any
 gastric influence, is itself a prolific source of
 disease; these are frequently obscure in their
 character, and require the closest investigations
 to arrive at any certainty of their true origin.
 Among other affections arising from this source
 Faithorn mentions a very distressing species
 of headache attended with giddiness, in which
 the stomach remains unaffected, though the
 bowels are somewhat increased, but the bowels be-
 come always in a slow state, from this arise
 great secretions or mucus of the bile, and as
 soon as accumulations arise, the attacks of
 headache and various modifications of vertigo
 supervene. The largest state of the bowels
 appears here to be the proximate cause of the
 affection, intestinal accumulations labour-



place, considerable pressure must be made on the
surrounding vessels, impeding the force of the
circulation, and destroying the equilibrium.
So indispensable to the exercise of healthy
functions, the natural consequence of such
obstruction is a determination to some other
part, and as the liver exercises a powerful
sympathy over the brain, this is the point
towards which the determination frequently
flows, producing those painful sensations
of which we have spoken, in the most great
inflammation of the liver to see the liver
that is found in the great vessels, and must be
that suffer greatly from those diseases
as primary arise from a pouring of
vessels or partial pressure on the brain.

The intention in this complaint is to put
the vessel in motion, that is to say, and
remove intestinal turgor, the cause being that



depression the effect will cease to be produced. Cause
simple, but the effect is not.

Chronic debility is a complaint of some cases
met with in practice, which it is impossible to
overcome, even by the persevering exhibition of
the most powerful tonics. This it has been
observed is often dependent on a latent hepatic
obstruction; we are all aware of the absolute
necessity of bile for the healthy performance
of digestion, and assimilation; without it the chyme
cannot be converted into chyle. This we infer
from the physiological fact that the second
step in the process of digestion is never entirely
accomplished, until we find the biliary material
mingled with the ingesta, where however this
is withheld, what the absorption along the
intestinal canal receives, and conveys into the
general circulation, can scarcely be of proper
quantity or quality, to supply the waste which



the system is constantly improving. If their order is
settled, but keep the elevated stage of power
what has been before, it is obvious
that the quantity must be increased, for the
general purpose of the system is to improve
and the new plan is to improve the system. Sys-
tem, Court thus deposed of their assistance
system, however, and we have seen the results.
This detail cannot be a source to the experience
of those who have been in the same field
and we have seen the results. The
new plan is to improve the system, and the
results of the new plan is not to be seen,
but it is to be seen in the results of the
new plan. The new plan is to improve the
system, and the results of the new plan is not
to be seen, but it is to be seen in the results
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phlogism, to stimulate the liver to healthy action,
 together with accurate perspiration, would be the
 great indication, after which some warm
 water, lemon, and strength is to be resorted
 to; The liver, according to Aristotle, that
 one of the offices of the bile was to prevent an undue
 accumulation of mucus in the substance of meat,
 which purpose it effectually answers, when
 secreted in due quantity, but when there is a
 deficient secretion, the mucus is apt to accumu-
 late in such proportions as the same may, and
 to become so thick and viscid, as not only prevents
 to obstruct the chyme, and gives rise to, mucus and
 passage, and even to prevent the state of bile
 from its ducts into the Duodenum. Hence, and
 I presume this flux itself becomes impig-
 led and gorges the peritænicæ, at other
 times (continues) this mucus so preventing
 the bile from passing out of the Duodenum.



downwards, causes a regurgitation of it into the stomach, and either brings on such heartach or torments, such as that are taken by the patient now, or even to medical attendance for such kind's former or redounding in the secretions, when the organ will be in a state of deficiency of this fluid, and a larger of the organ which is not it.

The might extend our remarks on this part of the subject, to a much greater length, but the limits to which we are necessarily confined forbid us then, for fear of too far exceeding of some of these diseases, which have their origin in a common secretion of bile.

Residents of warmer climates particularly recent comers, are constantly liable to diseases arising from an over secretions of bile, which appears in several cases to depend on atmospheric influences,



producing determinations to the digest. system,
 which frequently cannot be prevented even by
 the most scrupulous attention to diet, and cloth-
 ings. It is probably owing to the cutaneous hepatic
 sympathy, that those very important changes
 are so constantly produced, on the animal economy
 in tropical climates; for of all the diversified
 sympathies, which the liver, exercises over the
 various parts of the body; there is none perhaps,
 so powerful or so constant in its operation, as
 that which exists between the skin and the
 liver. Knowing as we now do the vast
 importance of this sympathy, it is astonishing,
 that it should have remained so long unknown,
 when the intestinal connection of the skin with
 the lungs, stomach, and intestines, was so
 universally acknowledged. It is however
 in tropical climates, where the extreme
 heats on the surface of the body, and of



the same, particularly are unerringly asserted, that
no case was ever known, in which the same

In the most important, it needs however, that
ultimate operations should be referred to our senses
for even whether the relations of the parts are known
in our general intellect to require a certain
that neither sympathy, nor antipathy, nor any other
supernatural, unconstituted faculty, but that
causes and consequents, which their position
a temperature near the surface, equals the lower
at the same time to a greater, scale so with respect
to, as a sea surface, not, as a boundary
of similar objects with the surface, at the same time
argues the history, temperature, and various other
in the whole, Chiriqui, and Maria, it is
acknowledged by the most distinguished mari-
ners, that not only are the functions of the
skin, notoriously defective, but that there is
also positive evidence of the diminished



deranged action of the liver, but still, just as to
 establish the point, we have the evidence of
 persons who remark that even from the
 derangement of bile as well as of perspiration
 there is a nervous case (neurostic) of this nature
 in the various actions of the Extremities, Medulla
 and Surgical, nervous, where an atypical
 dyspepsia with derangement of bile, could not be
 removed, till a thorough degree of (and several ex-
 cess brought on a nervous perspiration;

Thus we see, there is an almost constant re-
 lation, dependent not so much on a
 natural as on an artificial connection, found
 and proved in all that cases, the various
 nervous, but where similar causes constant
 in general, even in different organs, in the
 production of bile, effects, that in fact, if
 applied to the at last to confer merit,
 that agents which in the world by the



sympathetic connection, about the same, by which
 the system is made to be affected by the
 influence of the nervous system, in the production
 of excessive secretions.

The skin is more liable to morbid action than
 any other organ, than any other part
 of the animal structure, but it is also better
 capable of recovering its health and power
 of healthy action, after every disorder, from
 the excess of its healthy action, the liver
 suffers a corresponding change, it is excited,
 secretions become more abundant, the
 bile becomes more viscid, and the
 system is more excited, the excitement
 under which the organ at first laboured, is
 occasionally, but by repetition becomes habit-
 ually confirmed, and sub-inflammations,
 interstitions, and enlargements are the
 consequence.



We have remarked that through the cutaneous hepatic sympathy, the liver is often stimulated to excretive action, increased the secretion of bile, which by its quantity, as well as sometimes by its acrid quality, not only produces deviations from health, in the alimentary canal, but often affects deleteriously the system at large.

But however great the inconvenience, and even danger of excretive biliary secretion, it will I expect be admitted that the consequences are not of so an alarming a character, as those arising from diminished action of the liver. When the *prima via* is loaded by any redundancy of bile, a general languor of the body is speedily induced, and the stomach becoming affected, nausea, foul tongue, loss of appetite, and indigestion are present. Whether these symptoms are induced by sympathy or actual superabundance of bile into the stomach, is still a matter in dispute.



"...without any doubt a good deal of
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 the living that expect and expect page argument
 it states that the documents at all times which
 certain property of the ... and gives
 the authority of Moragui in support of the ...

Johnston expresses his decided belief in, and
 further remarks that that there were a great
 into the stomach, without violent exertion of that
 again, as is common for the rest of ...
 where the sensation is ... from getting out
 the ... to the For this
 we have a ... of
 whose experience, own ... with these
 to ... and there are ...
 the ... the that in
 many ... disorders the contents of the
 stomach present a yellowish appearance and
 even have a bluish taste; but this may be

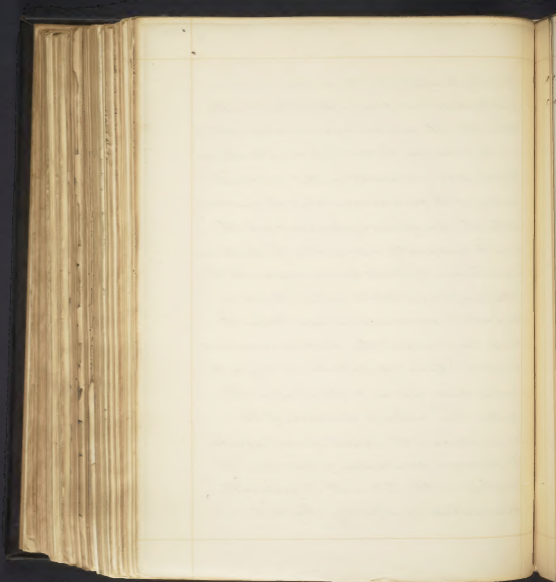


owing to an altered property of the gastric juices, depending on the powerful sympathy which exists between the liver and stomach; in fact says an excellent writer: "such is the nature of the stomach, that it may be considered as the centre of all sympathy, and influenced by the derangement of every part of the body, as well as the liver. With a long necessity for having recourse to the supposition of the bile being mixed with its contents, in order to their acquiring a faultless exit into the circulation." From the above evidence, we are inclined to the

opinion, that it is owing to the gastric hepatic sympathy, that many of those stomach affections are produced, which are so frequently attended with hepatic diseases. But besides the above symptoms induced by gastric affections, the bile has been thrown in excessive quantity, and perhaps in a vitiated state into the intestines, it yet produces troublesome diarrhoeas, and



by exciting to excessive action, the secretory action,
 finally causes want of tone in the intestinal canal;
 When the bile exerts such a predominating influence
 over the primum via, the absorbents are often stimu-
 lated to such increased action, that considerable
 portions of the fluids are carried into the circulation,
 so that the skin assumes a yellow aspect, and the
 urine becomes sensibly impregnated, the pulse more
 is quickened, thirst, and heat increased, with the
 other symptoms of febrile excitement and ex-
 cessive debility and evacuations ensue; When the
 disease has proceeded to this extent, our remedies will
 generally be found only palliative, so long as the
 exciting causes continue to operate upon the
 system; here a change of climate, if the
 circumstances of the patient permit, should
 be proposed, for in a more genial clime, the
 secretions of the bile will be gradually
 diminished, its healthy character.



recovered, and the stomach and intestinal canal restored to their healthy functions.

